Maintaining agricultural production systems that are highly competitive in the global economy

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V(A). Planned Program (Summary)

1. Name of the Planned Program

Maintaining agricultural production systems that are highly competitive in the global economy

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
125	Agroforestry			4%	4%
202	Plant Genetic Resources			15%	15%
205	Plant Management Systems			19%	19%
216	Integrated Pest Management Systems			20%	20%
302	Nutrient Utilization in Animals			20%	20%
311	Animal Diseases			10%	10%
402	Engineering Systems and Equipment			4%	4%
502	New and Improved Food Products			3%	3%
601	Marketing and Distribution Practices			5%	5%
	Total			100%	100%

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V(C). Planned Program (Inputs)

1. Actual amount of professional FTE/SYs expended this Program

Year: 2007	Extension		Research	
	1862	1890	1862	1890
Plan	2.0	0.0	51.1	20.6
Actual	0.0	0.0	47.0	29.3

2. Institution Name: Alabama A&M University

Actual dollars expended in this Program (includes Carryover Funds from previous years)

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
0	0	0	607820
1862 Matching	1890 Matching	1862 Matching	1890 Matching
0	0	0	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
0	0	0	0

2. Institution Name: Auburn University

Actual dollars expended in this Program (includes Carryover Funds from previous years)

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
0	0	1952438	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
0	0	1952438	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
0	0	0	0

2. Institution Name: Tuskegee University

Actual dollars expended in this Program (includes Carryover Funds from previous years)

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
0	0	0	919714
1862 Matching	1890 Matching	1862 Matching	1890 Matching
0	0	0	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
0	0	0	0

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V(D). Planned Program (Activity)

1. Brief description of the Activity

Phytochemicals and antioxidants were studied for their functions in functional foods using food crops such as purslane, sweet potato greens, and muscadine grapes. Several isoflavones were identified in the purslane and sweet potato greens. Sensory research analyses have shown that these novel vegetables are generally accepted in the diet. This information is being used in the implementation of community nutrition education programs.

Ways to increase use of tagatose in food, particularly as part of cookie recipes are being developed.

State-of-the-art technology was used to broaden sweetpotato germplasm selection criteria for the selection and evaluation of germplasm for potential use for the production of ethanol.

Sodium azide was evaluated to replace methyl bromide, which would allow longer production duration following treatment for soilborne pests and pathogens.

A method for determining the phytochemical contents of peanuts was developed. This method may be vital to consumers seeking to enhance their nutritional planning.

Genes conferring high fiber quality in cotton was identified.

The functional and evolutionary aspect of the plant-reniform nematode interactions was identified through the use of genomics and bioinformatics.

In-house amendments to poultry litter were evaluated for their effectiveness in reducing ammonia emissions contributing to improved economic viability of poultry production facilities.

Turkey genome are mapped for genes that are implicated in cardiomyopathy with the ultimate goal of developing a genetic model for human heart disease in African Americans.

Varying levels of dietary protein in lactating cows, between 13% and current recommendations of 17%, were found not to affect milk quality or quantity. Such findings will make it possible to reduce production costs.

Alternative feeds such as kudzu, and feeds supplemented with copper were found to increase the profitability of goat production.

70 advanced breeding lines of canola have been developed.

Methods for inland shrimp production were developed. Research has helped shrimp farmers sustain survival rates above 60%.

Best Management Practices (BMPs) were developed for aquaculture to minimize the environmental impact of aquaculture.

Diagnostic methods for fish diseases were developed.

Researchers at Tuskegee University are using of both soil enzyme assays and microbial diversity measurements to evaluate the effects of tillage and cropping practices on water quality, selected soil factors and enzyme activities in 8 watersheds in Alabama.

Water quality tests were performed of well water samples for Alabama citizens.

the educational deficit of agricultural biotechnology in underserved communities of the south was addressed. Teachers and, through them, more than 1000 high school students located in underserved communities received training and/or teaching kits in biotechnology.

Several vegetable and medicinal type crops were demonstrated to limited-resource farmers via activities/field days, workshops, and one-day symposia.

Problems associated with loss of family property when an individual dies without a will were evaluated.

Mentorship was provided to minority high school students through the Summer Apprenticeship Program. This program allows rising high school seniors and juniors to work alongside the scientists in their laboratories during the summer to expose the students to scientific research. This has resulted in increased high school student interest in the sciences and subsequent enrollment in these disciplines in college.

2. Brief description of the target audience

Extension specialists, county agents, producers (particularly those that are innovative), all producers in the state, students (both K-12 and at our institutions), all state citizens. 48,000 people are said to be directly involved in farming; while Alabama's agribusiness industries account for 476,000 jobs.

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V(E). Planned Program (Outputs)

1. Standard output measures

Target for the number of persons (contacts) reached through direct and indirect contact methods

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
Plan	2000	12000	2000	8000
2007	2000	12000	2000	8000

2. Number of Patent Applications Submitted (Standard Research Output)

Patent Applications Submitted

Year	Target
Plan:	0
2007:	0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

	Extension	Research	Total
Plan			
2007	0	50	50

V(F). State Defined Outputs

Output Target
Output #1

Output Measure

? Publications

Year	Target	Actual
2007	50	0

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V(G). State Defined Outcomes

O No.	Outcome Name
1	Market value of agricultural products ($ billion) (2002 = $3.26 bil). Program success will be indicated if market value of AL ag products stay level or increase. (Medium term outcome)
2	Number of producers (ALFA cites 48,000, Apr. 2006). Program success will be reflected by little or no change in size of the population of producers. (Long-term)
3	Average producer age (2002 = 56.6). Program success will be indicated by declining or no change in the average producer age. (Long-term)

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Outcome #1

1. Outcome

Market value of agricultural products ($ billion) (2002 = $3.26 bil). Program success will be indicated if market value of AL ag products stay level or increase. (Medium term outcome)

2. Associated Institution Types

- 1862 Research
- 1890 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	0	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
402	Engineering Systems and Equipment
125	Agroforestry
202	Plant Genetic Resources
302	Nutrient Utilization in Animals
601	Marketing and Distribution Practices
216	Integrated Pest Management Systems
502	New and Improved Food Products
205	Plant Management Systems
311	Animal Diseases

Outcome #2

1. Outcome

Number of producers (ALFA cites 48,000, Apr. 2006). Program success will be reflected by little or no change in size of the population of producers. (Long-term)

2. Associated Institution Types

- 1862 Research
- 1890 Research

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	47900	47900

3c. Qualitative Outcome or Impact Statement

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Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
216	Integrated Pest Management Systems
311	Animal Diseases
205	Plant Management Systems
601	Marketing and Distribution Practices
125	Agroforestry
202	Plant Genetic Resources
302	Nutrient Utilization in Animals
502	New and Improved Food Products
402	Engineering Systems and Equipment

Outcome #3

1. Outcome

Average producer age (2002 = 56.6). Program success will be indicated by declining or no change in the average producer age. (Long-term)

2. Associated Institution Types

•1862 Research
•1890 Research

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	56	56

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
302	Nutrient Utilization in Animals
402	Engineering Systems and Equipment
601	Marketing and Distribution Practices
205	Plant Management Systems
311	Animal Diseases
202	Plant Genetic Resources
216	Integrated Pest Management Systems

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502	New and Improved Food Products
125	Agroforestry

V(H). Planned Program (External Factors)

External factors which affected outcomes

- ? Natural Disasters (drought,weather extremes,etc.)
- ? Economy
- ? Appropriations changes
- ? Public Policy changes
- ? Government Regulations
- ? Competing Programatic Challenges
- ? Populations changes (immigration,new cultural groupings,etc.)

Brief Explanation

2007 was an extremely dry year. Such historical drought certainly contributed to lower agricultural production. The change in the energy sector of the economy has had a large impact on agriculture. While crop-based agriculture was affected by drought, crop growers were largely ahead as the prices of grains and other crops increased drastically in the last year. However, the increase in prices of corn, soybean, and other crops led to major increases in the cost of feed, which adversely affected the poultry, beef, dairy, egg, and aquaculture industries.

V(I). Planned Program (Evaluation Studies and Data Collection)

1. Evaluation Studies Planned

- ? Retrospective (post program)
- ? During (during program)

Evaluation Results

Specific projects that comprise the Planned Program were evaluated by departmental leaders. Overview of programs was evaluated by institution leaders.

Key Items of Evaluation